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Catillaria, Cladonia, Strigula, and *Cresporhaphis* species new to Turkey and Asia

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Abstract—Four species of lichen-forming fungi — *Catillaria atomarioides*, *Cladonia cyathomorpha, Strigula brevis, Cresporhaphis wienkampii* — are reported as new to Turkey and Asia.

Key Words—biodiversity, biota, Giresun

The lichen biota of Turkey is still largely unknown. In the last three years, many new lichen species were reported (e.g. Candan & Özdemir Türk 2008, Çobanoğlu et al. 2008, Halıcı & Aksoy 2009, Kınalıoğlu 2009, Öztürk & Güvenç 2010, Yazıcı et al. 2010). This contribution reports four species as first records for Turkey.

Specimens were collected in the provinces of Hatay, Giresun, and Ordu between 17 July 2004 and 10 April 2010. They were identified with various lichen guides (mainly Smith et al. 2009). Vouchers are preserved in the herbarium of the Faculty of Science and Arts, Giresun University, Giresun, Turkey. The collector and collection number are given in parentheses after the locality details.

Species recorded

Catillaria atomarioides (Müll. Arg.) H. Kilias Fig 1

Thallus thin, dark olivaceous to blackish. Apothecia 0.1–0.25 mm diam, black, sparse, mainly plane. Epithecium mostly dark brown to dark green. Hymenium

colourless, 32.5–40 µm tall. Ascospores simple, ellipsoid, colourless, 8–10 × 2.5–3.7 µm. Thallus C–, K–, KC–, PD–.

Specimen examined: **Giresun,** Keşap, sea shore, 40°58'20"N, 38°37'23"E, 0 m, 11 Apr. 2010, on siliceous rock (Kınalıoğlu 1801).

Known previously from western and northern Europe, Macaronesia, and Africa on hard acid rocks (including river shingle and slate) and brick. In Turkey the specimen was collected from siliceous rock along the coast. New to Asia.

A detailed description is provided by Smith et al. (2009).

Discussion: *Catillaria atomarioides* is easily mistaken for a diminutive form of *C. chalybeia* or *C. subviridis* (coastal, pale inner roper margin), or even *Amandinea punctata* (Smith et al. 2009). The hymenium is slightly smaller in the Turkish specimen than in the European, Macaronesian, and South American material. Original descriptions of this species report hymenium up to 30–40 µm (Smith et al. 2009). The Turkish collection differs ecologically by occurring only at coastal localities.

Cladonia cyathomorpha Stirt. ex Walt. Watson Fig 2

Primary thallus dominant. Squamules 2–4 mm broad, greenish above, white below. Podetia rare, up to 2–5 mm tall, forming cups to 3 mm wide, coarsely corticate within. Thallus C–, K+ yellow, KC–, PD+ red.

Specimens examined: **Giresun,** Keşap, 40°58'22"N, 38°37'36"E, 4 m, 12 Feb. 2006, on siliceous rock (Kınalıoğlu 1804). **Ordu**, N of Ünye, Çamlık, sea shore, 2 m, 21 Jul. 2006, on soil (Kınalıoğlu 1805).

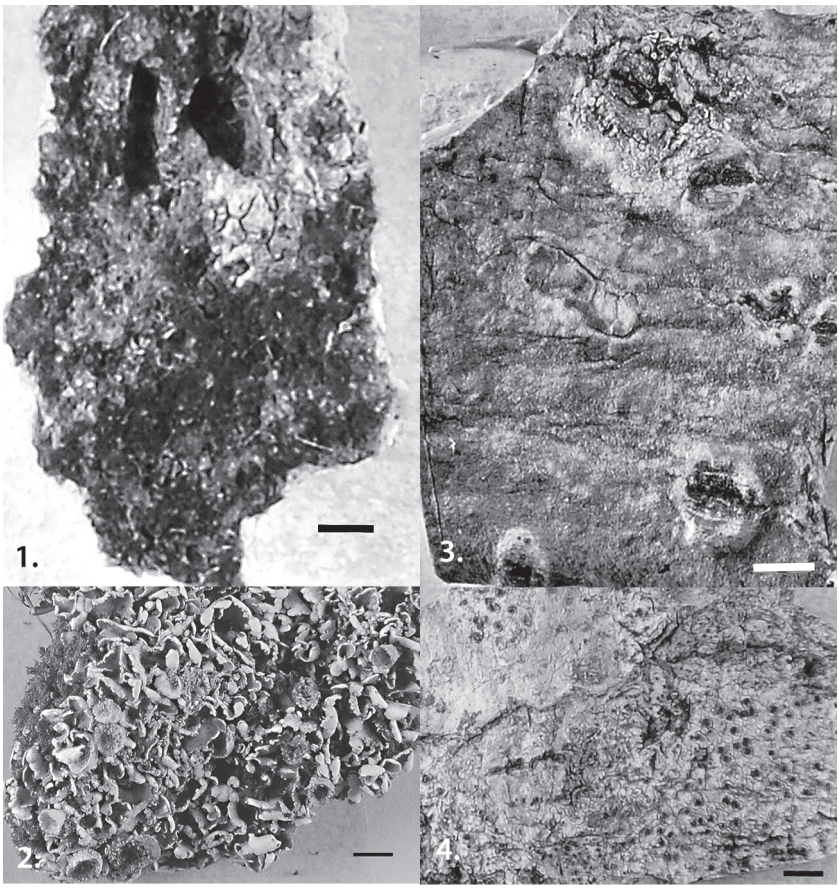
Known from western Europe, Macaronesia, and South America, mostly on vertical faces of mossy rocks in hilly and montane areas. New to Turkey and Asia. In Turkey the specimens were only collected from siliceous rock and soil along the coast.

A detailed description is provided by Smith et al. (2009).

Discussion: *Cladonia cyathomorpha* is distinguished from *C. pyxidata* in having larger, veined, basal squamules and an additional unidentified compound with fumarprotocetraric acid (Smith et al. (2009). The Turkish material is distinguished from western European, Macaronesian, and South American specimens by smaller podetia and squamules. Smith et al. (2009) cite podetia as to 0.8 cm, basal squamules 5-10 mm diam. The Turkish collection differs ecologically in occurring both on siliceous rock and on soil at coastal localities.

Cresporhaphis wienkampii (J. Lahm ex Hazsl.) M.B. Aguirre Fig 3

Thallus embedded in bark cells. Perithecia black, superficial, to 0.2–0.4 mm diam. Ascospores 22.5–30 × 3–3.5 µm in size, colourless. Thallus C–, K–, KC–, PD–.



Figs. 1–4. Habitus of four lichens new to Turkey. *Catillaria atomarioides* (Kınalıoğlu 1801). Fig. 2. *Cladonia cyathomorpha* (Kınalıoğlu 1804). Fig. 3. *Cresporhaphis wienkampii* (Kınalıoğlu 1814). Fig. 4. *Strigula brevis*, (Kınalıoğlu 1811). Scales: 2 mm.

Specimen examined: **Hatay**, Dörtyol, S of Konak Village, 36°48'29"N, 36°15'10"E, 172 m, 01 Feb. 2008, on *Quercus* sp. (Kınalıoğlu 1814).

Previously known only from Europe. On living bark. New to Turkey and Asia.

A detailed description is provided by Smith et al. (2009).

Discussion: The perithecia in the Turkish collection are slightly larger than in the European specimen, where the perithecia measure 0.15–0.3 mm diam.

Strigula brevis Bricaud & Cl. Roux Fig 4

Thallus grey-white, partly immersed. Perithecia black, hemispherical, almost semi-immersed, 0.2–0.5 mm diam. Ascospores 25–37.5 × 5–7.5 µm, 3–5 septate, fusiform. Thallus C–, K–, KC–, PD–.

Specimen examined: **Ordu**, Gülyalı, Turnasuyu village, 41°03'20"N, 37°59'04"E, 17 m, 17 Jul. 2004, on *Juglans regia* (Kınalıoğlu 1811).

Known from western Europe and Macaronesia (Roux & Sérusiaux 2004). On living bark. New to Turkey and Asia.

A detailed description is provided by Roux & Sérusiaux (2004).

Discussion: The perithecia and ascospores of the Turkish material are larger than in the western European and Macaronesian collections, where perithecia are 0.2–0.3 mm wide and ascospores measure (17)18–23.5(25) ×3.5–4.5 µm.

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